THE O'BRIEN CORPORATION

October 1, 1990

Chris Prokop, H-33
U.S. Environmental Protection Agency, Region IX
215 Fremont Street
San Francisco, CA 94105

RE: Breakwater Remedial Alternative Analysis:
The O'Brien Corporation

Dear Mr. Prokop:

Attached is a remedial alternative analysis for the removal of the breakwater located on the property of The O'Brien Corporation for your review and comment.

Alternative 3 has been recommended by EMCON who prepared the report. This recommendation was based on the assumption that the material could be easily separated. O'Brien is not thoroughly convinced this is the most efficient and practical option. We are continuing to evaluate the options and feel that alternative one (1) should be considered.

I look forward to hearing your comments and would be happy to arrange a meeting to discuss the details.

Sincerely,

Patricia Houle

Patricia Houle
Corporate Environmental Manager

Pre-decisional draft.

DO NOT RELEASE

PH/ns
043/90

cc: Mark Allen

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105

November 16, 1990

MEMORANDUM

SUBJECT: Review of Corrective Measures Study for the O'Brien Breakwater

FROM: Chris Prokop
Geologist

TO: Nancy Lindsay, Chief
Corrective Action Section

I have completed my review of the Corrective Measures Study (CMS) for the O'Brien breakwater entitled, "Breakwater Alternatives Analysis", that was received on October 12. The O'Brien consultant, EMCON Associates, evaluated five potential remediation options for the breakwater involving various combinations of off-site removal (Class I & III landfills) and in-situ stabilization. EMCON (O'Brien) has selected an alternative that entails removal of the hazardous portions of the excavated materials to a Class I landfill and transferral of the non-hazardous materials to a Class III landfill. The unit would then be backfilled with clean fill. While I support O'Brien's remedy selection, I have numerous concerns about their assumptions and the proposed cleanup level. Before going into detail on the specific elements of my review, however, I would like to provide some background on the breakwater and the nature of the CMS.

Regulatory History of the Breakwater

- The breakwater was discovered during excavations in 1986 associated with the closure activites at the adjacent surface impoundments.

- The breakwater is composed of 55-gallon drums filled with construction debris that are stacked two high and surrounded by miscellaneous fill and construction debris. The concrete cap that covers the top of the drums is essentially at the level of the adjacent ground surface.

- O'Brien claims that the Breakwater was constructed in the early 1900s to prevent erosion of soils and as part of dock construction.

- During a Mark Group (previous O'Brien consultant) investigation of the breakwater in 1989, three test pits were dug and numerous samples were collected from the interior of the drums and from the surrounding soil. Analyses of the construction debris from the drums yielded hazardous levels for lead (1,500 ppm vs. 1,000 ppm-TTLC) and zinc (21,000 ppm vs. 5,000 ppm-TTLC), as well as elevated barium (4,100 ppm). Analyses of the surrounding soil yielded hazardous levels for lead (36,000 ppm), as well as elevated zinc (3,800 ppm) and barium (2,100 ppm).

- Based on the above investigation, the breakwater is extimated to be 150' long, 7' wide and 7' deep. This calculates to a total volume of roughly 272 cubic yards.

Remedial Alternatives Considered in the CMS

1) Excavate the breakwater and transfer all soil and debris to a Class I landfill (without segregating hazardous and non-hazardous wastes based on TTLC).

2) Excavate the breakwater and segregate hazardous and non-hazardous materials; transfer all hazardous materials (based on TTLC) to a Class I landfill and reuse all non-hazardous materials as backfill.

3) Excavate the breakwater and segregate hazardous and non-hazardous materials; transfer all hazardous materials to a Class I landfill and all non-hazardous materials to a Class III landfill.

4) Excavate the breakwater and segregate and stabilize on-site all hazardous materials; use all stabilized and non-hazardous materials as backfill.

5) Excavate the breakwater and segregate and stabilize on-site all hazardous materials; dispose of all stabilized and non-hazardous materials at a Class III landfill.

Criteria Used in Evaluating the Remedial Alternatives

1) Effectiveness
2) Implementability
3) Safety, Public Health and Environmental Concerns
4) Cost

O'Brien contends that remediation alternatives that involve off-site disposal of all hazardous and non-hazardous excavated materials (soil, construction debris, drums, etc.) have greater long-term effectiveness than methods that incorporate on-site disposal of treated wastes due to the complete removal of the hazardous waste source (rationale for O'Brien's discounting of options 2 and 4). O'Brien also holds the position that alterna-

tives involving stabilization are less implementable due to problems related to establishing the technology's effectiveness (bench/pilot scale studies, extensive field QA/QC, etc.-rationale for discounting options 4 and 5). Lastly, the point is made that alternative 3 addresses all of the main environmental goals, ~~but~~ is less costly than alternative 1.

Assumptions Used in Evaluating the Remedial Alternatives

1) Lead is the only constituent of concern at the breakwater, and by remediating the lead, O'Brien will address all other contaminants.

Comment: The 1989 breakwater study revealed elevated concentrations of zinc, barium and some organic constituents. Moreover, since a significant portion of the site groundwater flow is toward the breakwater, groundwater contaminated with other constituents has probably ponded against it.

2) A cleanup level for lead of 1,000 mg/kg is appropriate for the breakwater.

Comment: For reasons cited below, this cleanup level is inappropriate.

3) Excavated naterials determined to be non-hazardous by the TTLC testing criteria (<1,000 mg/kg) can be placed untreated in a Class III landfill, or used as fill during the interim measure (IM), as implied in options 2,3 & 5.

Comment: The land ban regulations govern the disposal of lead-contaminated soil by means of the TCLP test, not the TTLC criteria. Following appropriate decontamination, metal drums, concrete chunks and bricks would be likely candidates for Class III landfill disposal, but all soil and debris would have to satisfy TCLP and/or other pertinent criteria.

4) A RCRA variance would be needed for an on-site treatment system if a stabilization option were chosen.

Comment: The need for a variance would depend on the treatment technology used, and may not be necessary.

5) On-site disposal of treated wastes would require the development of a delisting petition.

Comment: This is an inaccurate assumption since the lead waste previously managed by the facility was EP-toxic only.

6) A WDR order might be needed for the in-situ disposal of treated hazardous waste.

Comment: I believe that such would not be necessary since the IM is a HSWA-driven corrective action activity.

7) Lead is made more mobile during the stabilization process due to elevated pHs generated as a result of pozzolanic reaction between the lime/fly ash and concrete.

Comment: It has been my understanding that higher pHs resulted in lower solubity (less mobility) for lead.

7) Other agencies such as the Army Corps of Engineers, the San Francisco Bay Conservation and Development Commission, and the California Department of Fish and Game will impose their own permitting requirements on the IM.

8) 50% of the material comprising the breakwater is hazardous.

Areas of Concern (not addressed in the CMS)

1) The 1,000 mg/kg cleanup level for lead is unacceptable.

Discussion: A September 7, 1989 OSWER directive (attached) states that cleanup levels for lead should generally be in the 500-1000 mg/kg range for a residential setting. These numbers appear to be based on soil ingestion data for children. Current thinking among EPA toxicologists, however, is that a level even lower than the 500 mg/kg level should be used. Note that the site surface impoundments were closed at a level of 200 mg/kg (clean-closed according to P. Barni).

Probably the most critical issue at the site, since there are no potable groundwater sources being threatened, is the potential ecological impact caused by contaminated groundwater or surface water discharging to the Bay. The Marine Chronic Criteria (MCC) level for lead is 5.6 ppb, which is roughly 9X stricter than the MCL (50 ppb). If groundwater or surface water is reaching the Bay at concentrations greater than this, adverse marine biological impacts are probably occurring. O'Brien has detected lead in the 0.2-0.3 mg/l range in near shore Bay waters, but contends these elevated numbers (40-50X the MCC) are attributable to urban runoff (a SSF City sewer outfall discharges to the Bay immediately south of the facility.

While one could argue for a cleanup level based on TCLP levels (or STLC), these tests only provide an answer as to whether a waste is hazardous or not. As such, these levels are not cleanup standards. Consideration should be given to using a modified leaching test, however, that utilizes an extract solution representative of the site (i.e., lowest pH recorded at the

site), instead of the pH = 5 solution used in the TCLP test. The number obtained from this procedure could then be compared to the MCC (or MCL).

2) Constituents other than lead should be analyzed during the IM.

Discussion: Explained previously.

3) Extensive decontamination of solid objects (drums, concrete chunks and bricks) will be required prior to placement in a Class III landfill. Rinsewaters will require storage and analyzing.

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4) A number of temporary units (<90 days storage) will probably be needed as part of the IM for the storage of excavated soil and debris, as well as for collected groundwater. These will need to be described in detail in the CMI workplan.

Other Project Management Concerns

1) Since the IM for the breakwater is considered a final corrective measure, a cleanup level applicable for the entire site should be developed. For this reason, additional background lead leachability studies must be undertaken that will probably result in delays in the remedy implementation.

2) O'Brien has proposed incorporating the CMS revisions in the CMI (remedy selection) workplan, rather than generate a revised CMS. I believe this may be acceptable on the basis of the wording of Subpart S about expediting clear-cut remedial actions.

3) The proposed remedial alternative (total off-site disposal) runs contrary to the current EPA corrective action guidance favoring in-situ treatment methods. Given the relatively low projected volume of hazardous waste at this unit, however, I believe that the alternative is appropriate,

Conclusion

While I favor O'Brien's proposed remedial alternative, their CMI workplan must incorporate substantially more detail in many areas and address the deficiencies that I have enumerated. Moreover, additional investigatory studies will be needed prior to setting a cleanup level (or levels). This additional work should not delay the issuance of the revised order since the latter specifies work elements only.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
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TO: Nancy Lindsay, Chief
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MESSAGE CONFIRMATION

DATE:12/07/90 TIME:16:00

ID:EPA

DATE	TIME	TX-TIME	DISTANT STATION ID	MODE	PAGES	RESULT
12/07	15:58	01'35"	415 873 2628	G3-S	003	OK

FAX TRANSMISSION

TO

Name :	PATRICIA HOULE		
Organization :	O'BRIEN CORPORATION		
Mail Stop :			
Fax No. :	Area Code 415	Number 873-2628	
Verification No.:	Area Code	Number	

FROM

Name :	CHRIS PROKOP		
	Hazardous Waste Management Division U.S. Environmental Protection Agency Region 9 75 Hawthorne Street San Francisco, California 94105		
Section :	H-4-4		
Branch :			
Mail Stop :	H-4-4		
Phone No. :	Area Code 415	Number 744-2045	
Fax No. :	Area Code 415	Number 744-1433 FTS 484-1433	
Verification No.:	Area Code 415	Number	

DATE	12/7/90
PAGES	(Including Cover) 3
SUBJECT	CMS & CORRECTIVE ACTION ORDER
NOTE	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105

December 7, 1990

Ms. Patricia Houle
Environmental Manager
The O'Brien Corporation
450 Grand Avenue
South San Francisco, CA 94080

Re: Comments on the Breakwater CMS Report and confirmation of future meeting on EPA's Corrective Action Order for the O'Brien Facility

Dear Ms. Houle:

The U.S. Environmental Protection Agency (EPA) has completed its review of The O'Brien Corporation's Corrective Measures Study (CMS) for the breakwater. EPA's preliminary comments on the Breakwater CMS report are listed below. These comments and the status of EPA's corrective action order for the O'Brien Facility will be discussed in detail during the December 17, 1990 meeting at the EPA office in San Francisco.

CMS Comments

1) The proposed 1,000 mg/kg lead cleanup level for the site is inappropriate. The California State TTLC criteria are designed to establish if a waste is hazardous or not, and should not be used as cleanup standards. In addition, the 1,000 mg/kg level is inconsistent with the 200 mg/kg cleanup level established for the O'Brien surface impoumdments. The ultimate lead cleanup level for the site must be based on a thorough lead leachability study and a risk assessment. The risk assessment should be done in conformance with the EPA's Risk Assessment Guidance for Superfund (1989).

Given that the preparation for such studies will require significant lead time (preparation of workplan for leachability study/risk assessment, EPA comments and final workplan), this will impact the timing of CMS implementation. It should be noted that if O'Brien were to undertake the CMS prior to the completion of the leachability study/risk assessment, the breakwater area might require revisiting depending the the findings of the latter study.

2) The CMS implies that any waste materials that contain total lead less than 1,000 mg/kg can be placed in a solid waste landfill, as opposed to a hazardous waste landfill. Prior to placement in a solid waste landfill, however, the waste would

require testing as per the Toxicity Characteristic Leaching Procedure (TCLP). Therefore, the TCLP criteria, not the TTLC criteria, would dictate the acceptability of such placement.

3) The CMS incorrectly implies that a delisting petition would be required for on-site disposal. Only listed wastes must go through the delisting process.

4) During remediation of the breakwater, constituents other than lead should be analyzed. The 1989 breakwater study revealed elevated concentrations of zinc, barium and some organic constituents. Moreover, groundwater from throughout the site has, to some degree, ponded against the breakwater and may contain constituents from upgradient SWMUs (e.g., petroleum tanks, MW-21 area, etc.).

5) The CMS does not address the probable need to decontaminate much, if not all, of the construction debris (drums, concrete and bricks) from the breakwater excavation. Wipe tests may need to be performed on some of the non-porous objects, while leach tests may be required on porous construction materials. Any rinsewaters that are generated will require storage and analyzing.

6) The proposed off-site remediation alternative for the breakwater is not consistent with current EPA guidance that recommends in-situ remedies when possible. An in-situ stabilization approach may become more attractive pending the results of the lead leachability study/risk assessment.

In conclusion, certain aspects of the CMS warrant modification. EPA agrees, however, that these changes can be effected during the remedy design phase, as opposed to revising the CMS. Again, these issues will be discussed more fully during the upcoming December 17 meeting at EPA. If you have any further questions, please contact me at (415) 744-2045.

Sincerely,

Chris Prokop

Chris Prokop
Hydrogeologist

cc: Robert Reeves, RWQCB-Region 2
Duncan Austin, DHS-Region 2